

## **REMARKS**

Upon entry of the present Amendment-C, the application includes claims 1-12, of which claims 1, 3 and 5 are independent.

### **Response to Office Action**

The above-identified Office Action has been reviewed, the references carefully considered, and the Examiner's comments carefully weighed. In view thereof, the present Amendment-B is submitted.

It is contended that by the present amendment, all bases of objection and rejection set forth in the Office Action have been traversed and overcome. Accordingly, reconsideration and withdrawal of the objections and rejections is respectfully requested.

### **Interview of 13 February 2008**

As a preliminary matter, applicant thanks the Examiner for the courtesy and consideration extended during the telephone interview of 13 February, during which the Zwirn and Cibula references were discussed, along with possible claim amendments. Applicant believes that the interview was helpful to clarify the teaching of these references and to advance prosecution.

### **Amendments Presented**

Claim 1 has been amended to specify that the apparatus includes a pair of spaced-apart support pillars formed from a material having low thermal conductivity, the cover plate being operatively attached to the support pillars so as to be vertically adjustable thereon; and

an emission source which is operatively attached to the support pillars and disposed in parallel to and behind the cover plate as viewed from infrared cameras to be tested, and which is adapted to emit a different amount of infrared light when compared with the cover plate, the

emission source comprising a metal plate, and an element which is adhered to the metal plate, and which has an infrared emissivity that is different from that of the cover plate.

Claims 2 and 7 have been amended to remove the initial reference to the emission source comprising a metal plate, since this limitation has now been added to base claim 1.

Applicant respectfully submits that all of the above amendments are fully supported by the original disclosure. Applicant also respectfully submits that no new matter is introduced into the application by the above amendments, as all of the subject matter thereof was expressly or inherently disclosed by the original specification as filed.

#### **Claim Objections**

**In Item 2 of the Office Action, the Examiner has objected to claim 9 as being dependent upon a rejected base claim.** The Examiner stated that the claimed subject matter would be allowable if rewritten in independent form including all of the limitations of the base claim any intervening claims.

#### **Applicant's Response**

In regard to claim 9, applicant has carefully considered the Examiner's objection and respectfully suggests that the objection has been overcome and the claim is now allowable in light of the amendments to base claim 1, for the reasons stated below with respect to claim 1. Based on the foregoing, applicant respectfully believes that the objection to claim 9 has been overcome, and it is respectfully requested that such objection be reconsidered and withdrawn.

#### **Claim Rejections – 35 USC §103**

**In Item 5 of the Office Action, the Examiner rejected claim 1 as unpatentable over Zrwin (US 5,033,015) in view of Cibula et al. (US 3,44,378, referred to in the Office Action as Ronald et al.).** The second inventor's name on the Cibula et al. reference is Ronald Schuster,

which is where the applicant believes the Examiner got the name Ronald for this reference. We will refer to this reference (US 3,44,378) herein as either Cibula et al. or Ronald et al. In his rejection of claim 1, the Examiner states that Zwirn discloses an apparatus for testing infrared cameras (abstract; Fig. 1, Item 10) that comprises a cover plate adapted to emit infrared light and an emission source (Fig. 1, Item 2) that includes a black body (Fig. 1, Item 3) which is at one temperature, and a frame with a plurality of bars at a second temperature (Col. 2, Lines 55-57). The Examiner contends that in his view, it is well known that temperature is a factor that can change the emission of infrared light.

Further, the Examiner indicates that Zwirn does not expressly disclose that the cover plate has holes arranged in line. However, he maintains that in his view, 'Ronald et al'. discloses holes arranged in a line.

#### Applicant's Response

Upon careful consideration and in light of the above amendments, applicant respectfully traverses such rejection and submits that claim 1, as presently amended (as well as all claims which depend upon claim 1) are patentably distinct over the above reference, based on the following.

As a preliminary matter, applicant notes that the present amendment has made substantial and significant changes to independent claim 1 herein.

None of the references of record, whether considered individually or in any reasonable combination, teaches an apparatus as currently claimed, including a cover plate, a pair of spaced-apart support pillars formed from a material having low thermal conductivity, the cover plate being operatively attached to the support pillars so as to be vertically adjustable thereon; and an emission source which is operatively attached to the support pillars and disposed in parallel to

and behind the cover plate as viewed from infrared cameras to be tested, and which is adapted to emit a different amount of infrared light when compared with the cover plate, the emission source comprising a metal plate, and an element which is adhered to the metal plate, and which has an infrared emissivity that is different from that of the cover plate.

Applicant therefore requests reconsideration and withdrawal of the rejection of claim 1, due to the differences between the teachings of the references and the subject matter of claim 1 as currently amended.

#### The Zwirn Reference

While Zwirn discloses an apparatus usable for testing an imaging sensor, which may be an infrared sensor, and the disclosed apparatus of this reference includes a black body and a cover plate having a plurality of rectangular holes formed therein, Zwirn places significant emphasis on differing spacing of the rectangular holes, caused by different widths of bars in the cover plate. In the disclosed embodiment of Zwirn, “the widths of the bars 4 correspond to the desired test frequencies for the sensor system 5” (col. 2, lines 58-59).

It is respectfully submitted that **MPEP 2143.01** requires that a proposed modification cannot render a referenced invention unsatisfactory for its intended use. If the proposed modification would render the reference’s invention unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F2d 900, USPQ 1125 (CAFC; 1984). Moreover, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then such modification would be improper, and the combined teachings of the references are not sufficient to render the claims prima facie obvious. Where a suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in

the basic principle under which the [primary reference] construction was designed to operate, then such combination is improper. *In re Ratti*, 270 F.2d 810, 813, 123 USPQ 349, 352 (CCPA 1959).

Applicant respectfully suggests that modifying the system of Zwirn to make the holes evenly spaced, and all of the bars the same width, would make the apparatus unsatisfactory for its intended use, and would also change the basic principle under which the apparatus was designed to operate. Applicant therefore suggests that Zwirn and Cibula are not properly combinable under the standards set out in MPEP 2143.01

Furthermore, even if the references are combined for the sake of argument, the individual references, when hypothetically combined, would not result in the claimed structure, since Zwirn requires varied spacing of the rectangular holes to generate different width bars, and Cibula et al. could not be combined with Zwirn without improperly destroying the intended purpose of the Zwirn device, or requiring a substantial reconstruction and redesign of the elements shown in Zwirn as well as a change in the basic principle under which the system of Zwirn was designed to operate.

#### The Cibula et al. Reference

Cibula et al. discloses an X-ray timing apparatus, utilizing a phototiming device to control the length of exposure. The phototiming device comprises fluorescent sheets which are positioned in the path of the X-ray beam. The light generated in these fluorescent sheets is transmitted into light transmitting sheets known as paddles. Cibula et al. discloses an improvement in the light transmission from the fluorescent sheet to the paddles through a plurality of drilled, bottomed holes arranged in longitudinal and transverse rows and thus having a perimeter defined by a closed curve in the plane of a surface of the paddle (Col. 4, Lines 66-71).

The Cibula et al reference does not teach holes which are formed all of the way through

the paddle (Fig. 7, Item 45). A typical hole in the apparatus of Cibula is bottomed and made from 1/64 to 1/32 inch deep in a paddle which has a thickness of ¼ inch (Col. 5, Lines 7-9). In contrast, claim 1 of the present application, as presently amended, contains a limitation that the cover plate includes a plurality of holes which are formed through the cover plate. As such, the references, whether considered individually or in combination, do not disclose every limitation of the claim, nor do they render claim 1 obvious.

Further, applicant respectfully disagrees with the Examiner's rejection, since Cibula et al. teaches away from the claimed invention, as amended herein. The Court of Appeals for the Federal Circuit has established that a prima facie case of obviousness can be rebutted if the applicant . . . can show 'that the art in any material respect taught away' from the claimed invention." *In re Geisler*, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (CAFC 1997). "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, . . . would be led in a direction divergent from the path that was taken by the applicant." *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360, 52 USPQ2d 1294, 1298 (CAFC 1999), *In re Haruna*, 249 F.3d 1327; 58 U.S.P.Q.2D 1517 (CAFC 2001). Moreover, the U.S. Supreme Court confirmed that teaching away provides evidence of nonobviousness in the recent case of *KSR v. Teleflex*, 550 U.S. \_\_\_, 127 S. Ct. 1727 (2007).

The purpose of the Cibula et al. invention is to improve light transmission from the fluorescent sheet to the paddle (Col. 1, Lines 47-48). Once light is admitted into the paddle through the bottomed holes it is transmitted to an emitting portion of the paddle (Figs. 5 and 6, Items 41 and 51 respectively) which are located adjacent to the phototube (Fig. 3, Item 21). The phototube, which acts as a light responsive control element, receives light transmitted to it by the light transmitting paddles (Col. 3, Lines 64-67). The external surfaces of the paddles, other than

the holes and the emitting portions, are highly polished so that light is admitted only through the holes and thereafter confined between the two highly polished and reflective surfaces (Col. 5, Lines 2-5). The paddles serve as guide members which transmit a maximum of light energy from the admitting portions (i.e. the bottomed holes) to the emitting portion of the paddle (Col. 4, Lines 7-9). The purpose of the Cibula et al. invention would be substantially frustrated if the holes were to be formed all of the way through the paddle, since light would pass through the paddle, instead of entering through the holes and being transmitted to the emitting portion via the paddle.

Therefore, Cibula et al. teaches away from having holes formed through the cover plate, since the purpose of the claimed holes is to allow the difference in emission of infrared light between the cover plate and the emission source to be detectable to a sensor positioned in front of the cover plate. Hence, it would not have been obvious for one skilled in the art to combine the references to result in the claimed invention.

Based on the foregoing, applicant respectfully believes that the rejection of claim 1 is overcome, and it is respectfully requested that such rejection and any rejection/objection relating to any claim which depends either directly or indirectly on claim 1 be reconsidered and withdrawn.

**In Item 6 of the Office Action, the Examiner rejected claim 2 as unpatentable over Zrwin (US 5,033,015) in view of Cibula et al. (US 3,44,378) and further in view of Nagawawa et al. ("Application of Fourier Transform Infrared Emission Spectrometry to Surface Analysis").**

In regard to claim 2, the Examiner states that Zrwin and Cibula et al. disclose all of the claimed limitations except for the limitation of claim 2. However, the Examiner states that

Nagasawa et al. discloses using infrared emission spectra of thin polymer layers on flat aluminum plate that is connected to a heater.

*Applicant's Response*

Applicant has carefully considered the Examiner's rejection, and respectfully disagrees with such rejection for those reasons as stated above with respect to claim 1 which are not overcome by any additional teachings of Nagasawa et al. Further, Nagasawa et al. does not relate to testing infrared cameras, which is the object of the claimed invention. Instead, Nagasawa et al. relates to analyzing a surface of a metal workpiece, and as such persons skilled in the art would not consider the proposed modification of Zwrin to be obvious.

Based on the foregoing, applicant respectfully believes that the rejection of claim 2 is overcome and it is respectfully requested that such rejection be reconsidered and withdrawn.

**In Item 7 of the Office Action, the Examiner rejected Claim 4 under 35 USC §103(a) as unpatentable over Zwrin (US 5,033,015) in view of Ronald et al. (US 3,444,378), and further in view of Lillington et al. (US 5,902,417).** In his rejection of claim 4, the Examiner states that Zwrin and Ronald et al. disclose every limitation except the limitation of claim 4. However, according to the Examiner, Lillington et al. discloses an anti-reflection coating for reducing infrared reflection.

Applicant's Response

Applicant has carefully considered the Examiner's rejection, and respectfully disagrees with such rejection for those reasons as stated above with respect to claim 1, which are not overcome by any additional teachings of Lillington et al. Additionally, the anti-reflective coating disclosed in Lillington et al. does not disclose a process for reducing infrared reflection on objects other than solar cells, and as such a person skilled in the art would not consider the



proposed modification of Zwirn to be obvious.

Based on the foregoing, applicant respectfully believes that the rejection of claim 4 is overcome, and it is respectfully requested that such rejection be reconsidered and withdrawn.

**In Item 8 of the Office Action, the Examiner rejected claim 7 under 35 USC §103(a) as unpatentable over Zwirn (US 5,033,015) in view of Ronald et al. (US 3,444,378), and further in view of Nagasawa et al. (US 5,902,417).**

The Examiner stated that in his view, Zwirn and Ronald et al. disclose every limitation of claim 7 except where the emission source comprises a metal plate and a heating source and cooling source which is connected to the metal plate. However, it is Examiner's position that Nagasawa et al. discloses using infrared emission spectra of thin polymer layers on flat aluminum plate that is connected to a heater, and that the combination of these references would make the subject matter of claim 7 unpatentable.

*Applicant's Response*

Applicant has carefully considered the Examiner's rejection, and respectfully disagrees with such rejection for those reasons as stated above with respect to claim 1, which are not overcome by any additional teachings of Nagasawa et al.

Further, Nagasawa et al. does not relate to testing infrared cameras, which is the object of the claimed invention. Instead, Nagasawa et al. relates to analyzing a surface of a metal workpiece, and as such persons skilled in the art would not consider the proposed modification of Zwirn to be obvious.

Based on the foregoing, applicant respectfully believes that the rejection of claim 7 is overcome, and it is respectfully requested that such rejection be reconsidered and withdrawn.

**Conclusion**

Applicant respectfully submits that all of the above amendments are fully supported by the original application. Applicant also respectfully submits that the above amendments do not introduce any new matter into the application.

Based on all of the foregoing, applicant respectfully submits that all of the objections and rejections set forth in the Office Action are overcome, and that as presently amended, all of the pending claims are believed to be allowable over all of the references of record, whether considered singly or in combination. Applicant therefore requests reconsideration and withdrawal of the rejections and objections of record, and allowance of the pending claims.

The application is now believed to be in condition for allowance, and a notice to this effect is earnestly solicited.

Favorable reconsideration is respectfully requested.

Respectfully submitted,



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19 March 2008

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